REMARKS

The present application was filed on February 27, 2004 with claims 1 through 20. Claims 1 through 20 are presently pending in the above-identified patent application. Claims 1, 17, and 18 are proposed to be amended herein. A Request for Continued Examination is being submitted herewith.

In the Office Action, the Examiner rejected claims 1, 3, 4, 7, 9, 17, and 18 under 35 U.S.C. §102(b) as being anticipated by Malhi (United States Patent Number 6,194,773), and rejected claims 2, 8, 10-16, and 20 under 35 U.S.C. §103(a) as being unpatentable over Malhi in view of Tonami et al. (United States Patent Application Publication Number 2002/0125566). The Examiner indicated that claims 5, 6, and 19 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Independent Claims 1, 17 and 18

Independent claims 1, 17, and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by Malhi. Regarding claims 1, 17, and 18, the Examiner asserts that Malhi discloses that "a metal adhesion layer 52 formed on a side of the substrate 58 opposite the device film 46, wherein at least a portion of the adhesion layer 52 is segmented" (FIG. 3). In the Response to Arguments section of the final Office Action, the Examiner asserts that the prior art "metal layer" functions as an adhesion layer because it is adhered to the substrate. The Examiner further asserts that, because the adhesion metal layer 52 is segmented, the power transistor device would inherently exhibit "a reduced amount of bowing relative to an amount of bowing expected without the segmenting of the adhesion layer."

As Applicants previously noted, Malhi teaches that metal layer 52 provides the drain contacts of the transistor (col. 3, lines 29-30); Applicants could find no disclosure or suggestion by Malhi that metal layer 52 is an adhesion layer. In addition, Applicants note that each transistor disclosed by Malhi lies between a respective pair of vertical trenches 36. As shown in FIGS. 2C and 3, metal layer 52 is not segmented under each individual transistor disclosed by Malhi, and Malhi does not disclose or suggest that the configuration of metal layer

52 will reduce the amount of bowing of the transistor expected without the segmenting of metal layer 52.

Applicants also note that it is not clear if the segmented structure of Malhi will reduce the bowing in the Malhi structure. The structure disclosed by Malhi is very complicated from a stress/bow configuration point of view, as would be apparent to a person of ordinary skill in the art. Malhi teaches some details regarding the composition of the substrate (col. 2, line 25, to col. 3, line 48). The polysilicon used in the substrate is typically a larger volume than the single crystal silicon and it will tend to cause the system to bow (this is also dependent upon the details of the process used). The exact amount and direction of the bowing is very dependent upon the processes used in creating the structures, the exact geometry of the structures, and the dimensions of the various materials, as would be apparent to a person of ordinary skill in the art. Applicants could find ***no*** disclosure or suggestion by Malhi of the dimensional requirements; thus, *it cannot be surmised that the segmentation will reduce bowing.* In fact, *the structure disclosed by Malhi may increase bowing*, at least as compared to a non-segmented layer.

Finally, Applicants note that Malhi also does not disclose or suggest that *at least a portion of the adhesion layer is at least partially segmented and* ***configured to be thermally coupled to a heat sink.*** In fact, since Malhi teaches that metal layer 52 provides the *drain contacts of the transistor,* metal layer 52 is not suitable for attachment to a heat sink, as would be apparent to a person of ordinary skill in the art. Independent claims 1, 17, and 18 have been amended to require an *adhesion layer* formed on a side of the substrate opposite the device film, wherein *at least a portion of the adhesion layer is at least partially segmented and* ***configured to be thermally coupled to a heat sink****; the power transistor device thereby exhibiting a reduced amount of bowing relative to an amount of bowing expected without the segmenting of the adhesion layer.*

Thus, Malhi does not disclose or suggest an adhesion layer formed on a side of the substrate opposite the device film, wherein at least a portion of the adhesion layer is at least

partially segmented and configured to be thermally coupled to a heat sink; the power transistor device thereby exhibiting a reduced amount of bowing relative to an amount of bowing expected without the segmenting of the adhesion layer, as required by independent claims 1, 17, and 18, as amended.

Additional Cited References

Tonami was also cited by the Examiner for its disclosure that "the electrode layer 2 or 15 attached to the back surface of the substrate 1 comprises a segmented additional metal layer 15c of palladium and a wettable-surface layer 15d of gold sequentially deposited on a side surface of the adhesion layer 15a of NiCr."

Applicants note that Tonami is directed to a method of producing a high frequency circuit chip having a substrate made of a ceramic with a high dielectric constant. (Paragraph 15.) Tonami, however, does ***not*** disclose or suggest wherein *at least a portion of an adhesion layer is at least partially segmented and* ***configured to be thermally coupled to a heat sink***.

Thus, Tonami et al. do not disclose or suggest an adhesion layer formed on a side of the substrate opposite the device film, wherein at least a portion of the adhesion layer is at least partially segmented and configured to be thermally coupled to a heat sink; the power transistor device thereby exhibiting a reduced amount of bowing relative to an amount of bowing expected without the segmenting of the adhesion layer, as required by independent claims 1, 17, and 18, as amended.

Dependent Claims 2-16 and 19-20

Dependent claims 3, 4, 7, and 9 were rejected under 35 U.S.C. §102(b) as being anticipated by Malhi, and claims 2, 8, 10-16, and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Malhi in view of Tonami et al.

Claims 2-16 and 19-20 are dependent on claims 1 and 18, respectively, and are therefore patentably distinguished over Malhi and Tonami et al. (alone or in any combination) because of their dependency from amended independent claims 1 and 18 for the reasons set forth

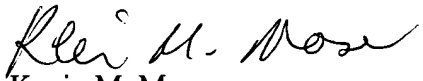
above, as well as other elements these claims add in combination to their base claim. The Examiner has already indicated that claims 5, 6, and 19 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

For at least the reasons set forth above, it is respectfully submitted that all of the pending claims, i.e., claims 1-20, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,



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